

# COMPONENTS OF EUKARYOTIC CELLS

**Eukaryotic cells, unlike prokaryotic cells, possess membrane-bound internal structures called organelles. The organelles common to eukaryotic plant and animal cells include mitochondria (the sites of energy production by oxidation of nutrients), a Golgi apparatus (where various macromolecules are modified, sorted, and packaged for secretion from the cell or for distribution to other organelles), an endoplasmic reticulum (the principal site of protein synthesis), and a nucleus (the residence of chromosomes and the site of DNA replication and transcription). The nucleolus is the site of ribosomal-RNA synthesis. The organelles unique to plant cells are chloroplasts (the sites of photosynthesis in green plants) and vacuoles (water-filled compartments that serve as space fillers and as storage vessels). Plant cells differ from animal cells also in being surrounded by a cellulose cell wall, a much more rigid form of the extracellular matrix that surrounds animal cells.**

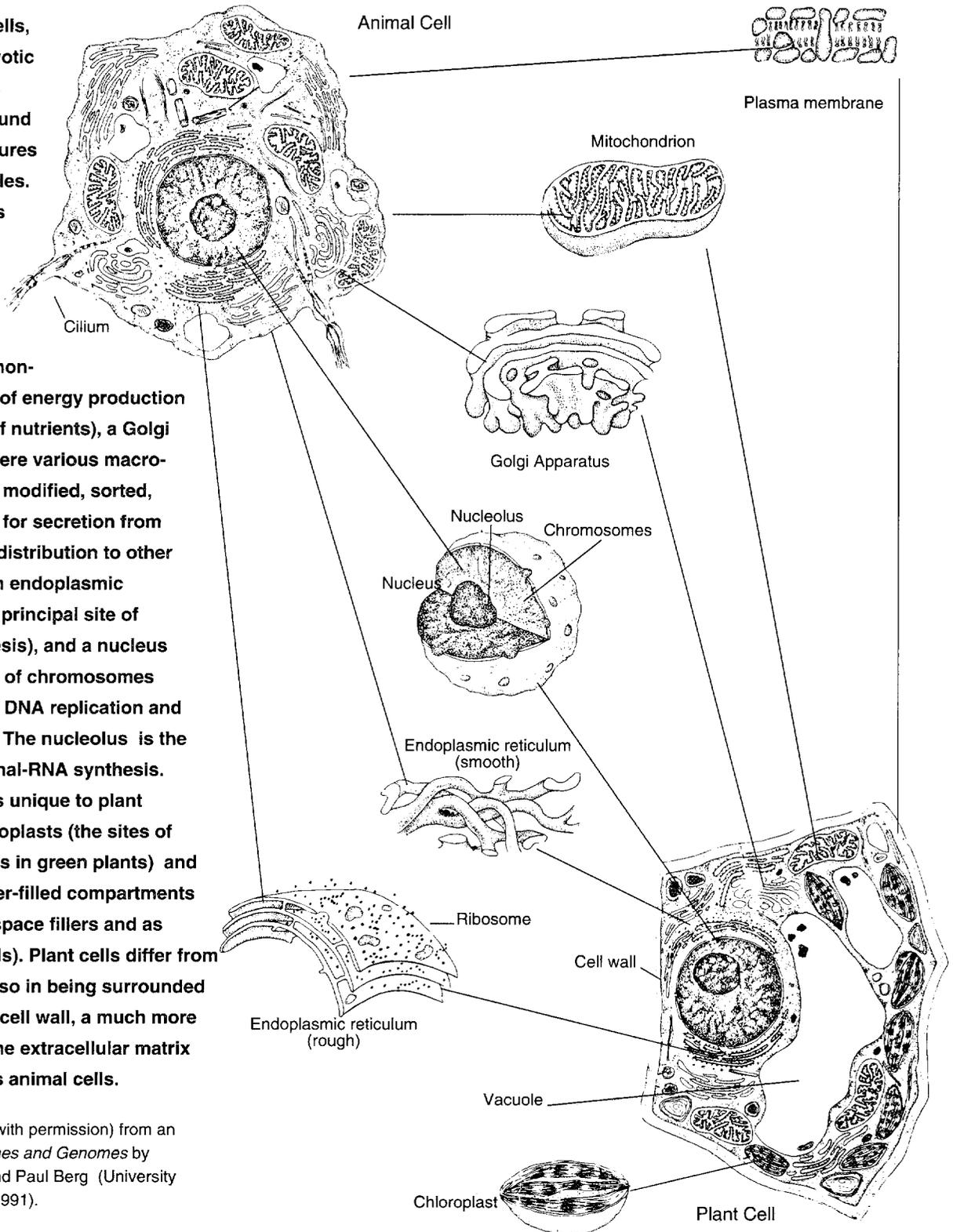


Figure adapted (with permission) from an illustration in *Genes and Genomes* by Maxine Singer and Paul Berg (University Science Books, 1991).